and anti-poliovirus drugs to reduce the risk of reintroduction VDPV viruses from chronically infected immunodeficient persons.

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Type: Invited Presentation

Final Abstract Number: 29.004
Session: Vaccines for Emerging and Re-emerging Public Health Threats
Date: Saturday, April 5, 2014
Time: 10:15-12:15
Room: Auditorium 2

Novel vaccine strategies to control influenza infections

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The global burden of influenza is substantial. Ample data from high resource settings supports that influenza infection leads to hospitalizations, deaths, excess medication usage, and days missed from work and school on an annual basis. Likewise, there is an increasing recognition of the high influenza burden in low resource countries, although most of our knowledge is limited to the direct effects of influenza illness and less is known about the indirect effects on school or work productivity or the financial consequences.

Influenza is a preventable disease, and advisory bodies throughout the world, including the World Health Organization, recommend influenza vaccine for various age groups and risk groups within the population. In 2013, an unprecedented number of influenza vaccines are available on the worldwide market, including quadrivalent vaccines, live-attenuated vaccines, high dose vaccines, vaccines administered intradermally and vaccines manufactured in cell culture. Many more influenza vaccines are in development, and it is anticipated that the diversity of influenza vaccine choices will continue to increase. Comparative trials are beginning to elucidate the relative benefits of certain vaccines in particular age groups and populations.

This talk will focus on the deployment of particular vaccines and novel strategies to improve influenza prevention programs. The relative advantages and disadvantages of different vaccines and vaccination strategies will be discussed, with a look into the future of influenza vaccine control in various settings.

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Session: Antibiotic Resistance - State of the Art
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Global drivers of antibiotic resistance

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New trends in the treatment of infectious diseases caused by antibiotic resistant bacteria

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Multidrug resistant (MDR) bacteria are a major concern in the worldwide. There remain some useful antibiotics for infectious diseases caused by MDR Gram-positive organisms. On the other hand, treatment of infections caused by MDR Gram-negative bacteria is quite a predicament because the number of effective antibiotics is limited. One of the options is colistin. A lot of articles have reported neurotoxicity or nephrotoxicity with colistin. The injectable colistin does not show enough efficiency for treating pneumonia, because this drug attains low concentrations in the lung. Furthermore, some organisms, including Proteae and *Serratia* spp., show natural resistance for colistin. Colistin is not commercially available in Japan. Another option is tigecycline. This compound shows antibiotic activity against both Gram-negative organisms and Gram-positive organisms. Unfortunately, this drug does not show antibiotic activity against *Pseudomonas aeruginosa*. More therapeutic options are needed. We first constructed a tool for finding combination antibiotics by the modified checker board method. In Japan, the combination of amikacin and aztreonam is most effective combination for MDR *P. aeruginosa* including metallo-beta-lactamase (MBL) producers. Another useful option for MBL producing organisms is the combination of Braian® (EDTA-calcium) and beta-lactams, such as imipenem or ceftazidime. The effectiveness of this combination has been confirmed by in vitro and in vivo experiments using the murine experimental model. Another problem for infectious diseases by Gram-negative organism is endotoxin shock. Polymixycins can capture the lipopolysaccharides of Gram-negative bacteria. We have evaluated continuously infused low does colistin using microsphere in the murine infection model. Our data suggests that colistin can protect against endotoxin shock. In this presentation, we discuss these novel treatment strategies against infectious diseases caused by MDR Gram-negative organisms.

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